

Claims

What is claimed is:

- 1 1. An apparatus, including:
2 a multi-bit encoder coupled to a multi-tone generator to provide a multi-tone
3 communications signal having a substantially simultaneous multi-tone signaling
4 bandwidth of greater than about 20 percent of an associated carrier frequency.

- 1 2. The apparatus of claim 1, wherein the multi-bit encoder is to receive a
2 first bit stream and to provide a second bit stream having data presented
3 as one or more groups of substantially simultaneous bits.

- 1 3. The apparatus of claim 2, wherein the multi-bit encoder includes a shift
2 register.

- 1 4. The apparatus of claim 1, wherein the multi-tone generator includes:
2 a master oscillator and at least one slave oscillator.

- 1 5. The apparatus of claim 1, wherein the multi-tone generator is to generate
2 a plurality of tones responsive to the data.

- 1 6. The apparatus of claim 5, wherein the plurality of tones includes a
2 number of tones greater than a number of possible states of the data.

- 1 7. An apparatus, including:
2 a plurality of phasor detectors to determine a presence of a plurality of tones
3 included in a multi-tone communications signal by comparing a combined
4 amount of two measured orthogonal signal components to a threshold value.

- 1 8. The apparatus of claim 7, wherein at least one of the phasor detectors
- 2 includes a quadrature detector.

- 1 9. The apparatus of claim 7, wherein the two measured orthogonal signal
- 2 components include a sine component and a cosine component.

- 1 10. The apparatus of claim 7, further including:
 - 2 an amplifier having an averaging automatic gain control to receive the
 - 3 multi-tone communications signal from a distribution module and to apply a
 - 4 substantially equal gain to the plurality of tones.

- 1 11. A system, including:
 - 2 a multi-bit encoder coupled to a multi-tone generator to provide a first multi-
 - 3 tone communications signal having a substantially simultaneous multi-tone
 - 4 signaling bandwidth of greater than about 20 percent of an associated carrier
 - 5 frequency;
 - 6 a plurality of phasor detectors to determine a presence of a plurality of tones
 - 7 included in a second multi-tone communications signal by comparing a
 - 8 combined amount of two measured orthogonal signal components to a threshold
 - 9 value; and
 - 10 an omnidirectional antenna to transmit the first multi-tone communications
 - 11 signal and to receive the second multi-tone communications signal.

- 1 12. The system of claim 11, further including:
 - 2 a distribution module to couple to the omnidirectional antenna and to
 - 3 provide the second multi-tone communications signal to the plurality of phasor
 - 4 detectors.

- 1 13. The system of claim 11, further including:

2 a determination module to receive multiple indications of the presence of the
3 plurality of tones from the plurality of phasor detectors and to determine a
4 received data output corresponding to the multiple indications.

1 14. The system of claim 11, wherein the plurality of tones includes a number
2 of tones at least two times greater than a number of possible states of the
3 data.

1 15. A method, including:
2 translating a first bit stream into a multi-tone communications signal having
3 a substantially simultaneous multi-tone signaling bandwidth of greater than
4 about 20 percent of an associated carrier frequency.

1 16. The method of claim 15, wherein translating the first bit stream further
2 includes:
3 translating the first bit stream into a second bit stream having data presented
4 as one or more groups of substantially simultaneous bits.

1 17. The method of claim 16, further including:
2 translating the second bit stream into the multi-tone communications signal
3 comprising a number of substantially simultaneous tones less than or equal to a
4 maximum number of the substantially simultaneous bits.

1 18. The method of claim 16, further including:
2 shifting the first bit stream to provide the second bit stream.

1 19. A method, including:
2 receiving a multi-tone communications signal at a plurality of phasor
3 detectors to determine a presence of a number of substantially simultaneous
4 tones included in a multi-tone communications signal.

1 20. The method of claim 19, further including:
2 comparing a combined amount of two measured orthogonal signal
3 components in at least one of the number of substantially simultaneous tones to
4 a threshold value.

1 21. The method of claim 20, further including:
2 amplifying the multi-tone communications signal using an approximately
3 equal gain prior to the comparing.

1 22. An article comprising a machine-accessible medium having associated
2 information, wherein the information, when accessed, results in a
3 machine performing:
4 determining a presence of a plurality of tones included in a multi-tone
5 communications signal by comparing a combined amount of two measured
6 orthogonal signal components to a threshold value.

1 23. The article of claim 22, wherein determining the presence further
2 includes:
3 receiving the multi-tone communications signal at a plurality of phasor
4 detectors.

1 24. The article of claim 22, wherein determining the presence further
2 includes:
3 amplifying the multi-tone communications signal using an approximately
4 equal gain prior to the comparing.

1 25. The article of claim 22, further including:
2 receiving multiple indications of the presence of the plurality of tones from a
3 plurality of phasor detectors.

- 1 26. The article of claim 25, further including:
 - 2 determining a received data output corresponding to the multiple indications.
- 1 27. An article comprising a machine-accessible medium having associated
2 information, wherein the information, when accessed, results in a
3 machine performing:
 - 4 translating a first bit stream into a multi-tone communications signal having
5 a substantially simultaneous multi-tone signaling bandwidth of greater than
6 about 20 percent of an associated carrier frequency.
- 1 28. The article of claim 27, wherein translating the first bit stream further
2 includes:
 - 3 translating the first bit stream into a second bit stream having data presented
4 as at least two groups of substantially simultaneous bits.
- 1 29. The article of claim 27, further including:
 - 2 translating the second bit stream into the multi-tone communications signal
3 comprising a number of substantially simultaneous tones less than or equal to a
4 maximum number of the substantially simultaneous bits.